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ARMY ENVIRONMENTAL HYGIENE AGENCY ABERDEEN PROVING GR--ETC F/8 6/20
TOPICAL HAZARD EVALUATION PROGRAM OF CANDIDATE INSECT REPELLENT--ETC(U)
MAR 81 M J TOPPER, M H WEEKS

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UNITED STATES ARMY
ENVIRONMENTAL HYGIENE
AGENCY

ABERDEEN PROVING GROUND, MD 21010

TOPICAL HAZARD EVALUATION PROGRAM OF CANDIDATE INSECT REPELLENTS
U.S. DEPARTMENT OF AGRICULTURE PROPRIETARY CHEMICALS
AUS. 75-51-0236-81, 75-51-0238-81
75-51-0236-81 thru 75-51-0238-81, 75-51-0241-81, 75-51-0268-81,
75-51-0269-81, 75-51-0276-81 thru 75-51-0280-81,
75-51-0282-81, 75-51-0283-81
NOVEMBER 1978 - JANUARY 1981

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
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4. TITLE (and Subtitle) Topical Hazard Evaluation Program of Candidate Insect Repellents US Department of Agriculture Proprietary Chemicals Study Nos. 75-51-0203-81, 75-51-0213-81 thru 75-51-0218-81, 75-51-0236-81 thru 75-51-0238-81, 75-51-0241-81, 75-51-0268-81, 75-51-0269-81, 75-51-0276-81 thru 75-51-0280-81, 75-51-0282-81, 75-51-0283-81, Nov 78 - Jan 81		5. TYPE OF REPORT & PERIOD COVERED Final, Nov 78 - Jan 81
MICHAEL J. TOPPER, CPT, VC MAURICE H. WEEKS		6. PERFORMING ORG. REPORT NUMBER
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9. PERFORMING ORGANIZATION NAME AND ADDRESS Commander US Army Health Services Command Fort Sam Houston, TX 78234	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS	
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17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) AI3-37506-a AI3-37489-a AI3-30105 AI3-38103-a Skin irritation AI3-37568-a AI3-37490-a AI3-38265-a AI3-9768(9.5.80) Eye irritation AI3-37573-a AI3-37499-a AI3-38269-a Topical Hazard Evaluation AI3-37577-a AI3-37916 AI3-38098-a Candidate repellent AI3-37686-a AI3-14145 AI3-38099-a USDA Proprietary Chemical		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Preliminary hazard evaluation of the above candidate repellent chemicals were performed by means of laboratory studies using New Zealand White rabbits. Chemicals AI3-37506-a, 37582-a, 37489-a, 37490-a, 37499-a, and 37916 caused moderate to severe primary skin irritations and were not approved for further testing. Chemical AI3-38103-a caused staining of the skin and was not approved for further testing. Chemicals AI3-37568-a, 37573, 37577-a, 37685, 37686-a, 14145, 30105, 38265-a, 38268-a, 38269-a, 38098-a, 38099-a, and 9768 (9.5.80) caused moderate to severe eye irritation and also were not approved for further testing.		

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DEPARTMENT OF THE ARMY CPT Topper/mhb/AUTOVON
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY 584-3980
ABERDEEN PROVING GROUND, MARYLAND 21010

REPLY TO
ATTENTION OF
HSE-LT/WP 6

11-23 Mar 81 1218

12 MAR 1981

SUBJECT: Topical Hazard Evaluation Program of Candidate Insect Repellents US
Department of Agriculture Proprietary Chemicals, Study Nos. *Numbers*
75-51-0203-81, 75-51-0213-81 thru 75-51-0218-81, 75-51-0236-81 thru
75-51-0238-81, 75-51-0241-81, 75-51-0268-81, 75-51-0269-81,
75-51-0276-81 thru 75-51-0280-81, 75-51-0282-81, 75-51-0283-81,
November 1978 - January 1981.

9) Final Report

Executive Secretary
Armed Forces Pest Management Board
Forest Glen Section, WRAMC
Washington, DC 20012

10: Michael J. Topper
Maurice H. Weeks

A summary of the pertinent findings and recommendations of the inclosed report follows:

Preliminary hazard evaluation of the above candidate repellent chemicals were performed by means of laboratory studies using New Zealand White rabbits. Chemicals AI3-37506-a, 37582-a, 37489-a, 37490-a, 37499-a, and 37916 caused moderate to severe primary skin irritations and were not approved for further testing. Chemical AI3-38103-a caused staining of the skin and was not approved for further testing. Chemicals AI3-37568-a, 37573, 37577-a, 37685, 37686-a, 14145, 30105, 38265-a, 38268-a, 38269-a, 38098-a, 38099-a, and 9768 (9.5.80) caused moderate to severe eye irritation and also were not approved for further testing.

FOR THE COMMANDER:

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Salute IT (az)
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Director, Laboratory Services

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DEPARTMENT OF THE ARMY
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY
ABERDEEN PROVING GROUND, MARYLAND 21010

REPLY TO
ATTENTION OF

HSE-LT/WP

TOPICAL HAZARD EVALUATION PROGRAM OF CANDIDATE INSECT REPELLENTS
US DEPARTMENT OF AGRICULTURE PROPRIETARY CHEMICALS *

STUDY NOS. 75-51-0203-81, 75-51-0213-81 thru 75-51-0218-81,
75-51-0236-81 thru 75-51-0238-81, 75-51-0241-81, 75-51-0268-81,

75-51-0269-81, 75-51-0276-81 thru 75-51-0280-81,

75-51-0282-81, 75-51-0283-81

NOVEMBER 1978 - JANUARY 1981

1. AUTHORITY.

a. Letters, US Department of Agriculture, Agriculture Research Service Southern Region, Insects Affecting Man Research Laboratory, Gainesville, FL, 30 November 1978 (AI3-37506-a); 27 March 1979 (AI3-37568-a, 37573, 37577-a, 37582-a, 37685, 37686-a); 11 October 1979 (AI3-37489-a, 37490-a, 37499-a); 23 November 1979 (AI3-37916); 22 July 1980 (AI3-14145, 30105); and 3 October 1980 [AI3-38265-a, 38268-a, 38269-a, 38098-a, 38099-a, 38103-a, 9768 (9.5.80)].

b. Memorandum of Understanding between the US Army Environmental Hygiene Agency; the US Army Health Services Command; the Department of the Army Office of The Surgeon General; the Armed Forces Pest Control Board; and the US Department of Agriculture, Agricultural Research, Science and Education Administration; titled, Coordination of Biological and Toxicological Testing of Pesticides, effective 23 January 1979.

2. REFERENCE. Toxicology Division Procedural Guide, US Army Environmental Hygiene Agency (USAEEHA), 1972, revised 1976.

3. PURPOSE. The purpose of this program is to provide guidance for further entomological testing of candidate insect repellents.

4. SUMMARY OF FINDINGS. Hazard evaluations of the above named candidate repellents, US Department of Agriculture (USDA) Proprietary Chemicals, were conducted by this Agency using New Zealand White rabbits for skin and eye studies. A tabular presentation of animal toxicity data developed in this Agency follows:†‡

* See Appendix A for a list of USDA Proprietary chemicals evaluated in this report.

† In conducting the studies described in this report, the investigators adhered to the "Guide for the Care and Use of Laboratory Animals," US Department of Health, Education and Welfare Publication No. (NIH) 74-23, revised 1978.

‡ The experiments reported herein were performed in animal facilities fully accredited by the American Association for the Accreditation of Laboratory Animal Care.

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TABLE. PRESENTATION OF DATA.

Study Number 75-51-XXXX-81	Chemical AI3-	USAEHA Skin Toxicity Category*	USAEHA Eye Toxicity Category*
0203	37506-a	III	A
0213	37568-a	I	E
0214	37573	II	E
0215	37577-a	I	E
0216	37582-a	IV	E
0217	37685	II	F
0218	37686-a		F
0236	37489-a	IV	A
0237	37490-a	IV	A
0238	37499-a	IV	
0241	37916	III	A
0268	14145	I	E
0269	30105	I	EE
0276	38265-a	I	E
0277	38268-a	I	F
0278	38269-a	I	E
0279	38098-a	I	E
0280	28099-a	I	E
0282	38103-a	V	
0283	9768 (9.5.80)	II	E

* See Appendix B for Results.

5. CONCLUSION. Six technical-grade chemicals (AI3-37506-a, 37582-a, 37489-a, 37490-a, 37499-a, and 37916) caused moderate to severe primary skin irritations. One technical-grade chemical (AI3-38103-a) caused skin staining. Thirteen technical-grade chemicals [AI3-37568-a, 37573, 37577-a, 37685, 37686-a, 14145, 30105, 38265-a, 38268-a, 38269-a, 38098-a, 38099-a, and 9768 (9.5.80)] caused moderate to severe corneal and conjunctival eye irritations. None of these chemicals qualify as nonhazardous substances.

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6. RECOMMENDATIONS. Under the provisions of the Memorandum of Understanding (paragraph 1b), it is recommended that the following USDA proprietary chemicals be disapproved for further testing: AI3-37506-a, 37568-a, 37573, 37577-a, 37582-a, 37685, 37686-a, 37489-a, 37490-a, 37499-a, 37916, 14145, 30105, 38265-a, 38268-a, 38269-a, 38098-a, 38099-a, 38103-a, and 9768 (9.5.80).


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APPENDIX A

LIST OF USDA PROPRIETARY CHEMICALS EVALUATED

<u>Chemical</u>	<u>Study Number</u>
AI3-37506-a	75-51-0203-81
AI3-37568-a	75-51-0213-81
AI3-37573	75-51-0214-81
AI3-37577-a	75-51-0215-81
AI3-37582-a	75-51-0216-81
AI3-37685	75-51-0217-81
AI3-37686-a	75-51-0218-81
AI3-37489-a	75-51-0236-81
AI3-37490-a	75-51-0237-81
AI3-37499-a	75-51-0238-81
AI3-37916	75-51-0241-81
AI3-14145	75-51-0268-81
AI3-30105	75-51-0269-81
AI3-38265-a	75-51-0276-81
AI3-38268-a	75-51-0277-81
AI3-38269-a	75-51-0278-81
AI3-38098-a	75-51-0279-81
AI3-38099-a	75-51-0280-81
AI3-38103-a	75-51-0282-81
AI3-9768 (9.5.80)	75-51-0283-81

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APPENDIX B

TOPICAL HAZARD EVALUATION PROGRAM
DEFINITIONS OF CATEGORIES OF COMPOUNDS BEING
CONSIDERED FOR ACUTE SKIN APPLICATION

CATEGORY I - Compounds producing no primary irritation of the intact skin or no greater than mild primary irritation of the skin surrounding an abrasion. (INTERPRETATION: No restriction for acute application to the human skin.)

CATEGORY II - Compounds producing mild primary irritation of the intact skin and the skin surrounding an abrasion. (INTERPRETATION: Should be used only on human skin found by examination to have no abrasions or may be used as a clothing impregnant.)

CATEGORY III - Compounds producing moderate primary irritation of the intact skin and the skin surrounding an abrasion. (INTERPRETATION: Should not be used directly on the skin without a prophetic patch test having been conducted on humans to determine irritation potential to human skin. May be used without patch testing, with extreme caution, as clothing impregnants. Compound should be resubmitted in the form and at the intended use concentration so that its irritation potential can be reexamined using other test techniques on animals.)

CATEGORY IV - Compounds producing moderate to severe primary irritation of the intact skin and of the skin surrounding an abrasion and, in addition, producing necrosis, vesiculation, and/or eschars. (INTERPRETATION: Should be resubmitted for testing in the form and at the intended use concentration. Upon resubmission, its irritation potential will be reexamined using other test techniques on animals, prior to possible prophetic patch testing in humans, at concentrations which have been shown not to produce primary irritation in animals.)

CATEGORY V - Compounds impossible to classify because of staining of the skin or other masking effects owing to physical properties of the compound. (INTERPRETATION: Not suitable for use on humans.)

EYE CATEGORIES:

A. Compounds noninjurious to the eye. INTERPRETATION: Irritation of human eyes is not expected if the compound should accidentally get into the eyes, provided it is washed out as soon as possible.

B. Compounds producing mild injury to the cornea. INTERPRETATION: Should be used with caution around the eyes.

C. Compounds producing mild injury to the cornea, and in addition some injury to the conjunctiva. INTERPRETATION: Should be used with caution around the eyes and mucosa.

D. Compounds producing moderate injury to the cornea. INTERPRETATION: Should be used with extreme caution around the eyes.

E. Compounds producing moderate injury to the cornea, and in addition producing some injury to the conjunctiva. INTERPRETATION: Should be used with extreme caution around the eyes and mucosa.

F. Compounds producing severe injury to the cornea and to the conjunctiva. INTERPRETATION: Should be used with extreme caution. It is recommended that use be restricted to areas other than the face.

